

Absolute Location Using GPS Technology

By: Kevin A. Tholin
LaSalle High School,
South Bend, Indiana USA
June 14, 2002

Classroom sessions/estimated time: two 55-minute class sessions (1 lecture/worksheets, 1 GPS activity)

Grade level(s): 9th Grade

Purpose/rationale: Students need to be aware of the grid system and GPS technology to function successfully in today's information-based economy.

Indiana Social Studies Academic Standard addressed:

WG 1.1: Explain the Earth's grid system, and be able to locate places using degrees of latitude and longitude.

WG 1.3: Use locational technology in order to establish spatial relationships.

Objectives: Students should be able to:

1. understand the difference between absolute and relative location.
2. use the standard grid system coordinate system.
3. use Global Positioning Systems in order to establish spatial relationships.

Background: Students should be aware of directions.

Materials Required:

- World Geography textbook
- [PowerPoint presentation](#)
- Worksheets
- GPS unit
- Prizes for GPS activity

Procedure:

Day 1: Opening Activity

As they enter the classroom, students will be given a coordinates card (e.g. A-7, D-3) for their seat location. After all of the students are seated, explain the grid system they used to find their seat is similar to the grid system used for locating places on the globe.

PowerPoint Presentation

Teacher will lecture with the aid of a PowerPoint presentation.

Guided Practice

Teacher will use a page in the book explaining how the global grid system works. Students will answer the questions that appear at the end of the section.

Independent Practice

Geography skilld activity worksheets

Day 2: GPS field activity

Students will be introduced a standard, inexpensive GPS unit.

Students will be split into pairs, given one GPS unit, and a set of coordinates.

The teacher demonstrates how data is entered into the GPS unit.

Each pair of students follows the directions of the GPS unit to find the prize.

Assessment: verbal feedback, participation, worksheets, GPS activity

Adaptations/Extensions: UTM system

Interested students will be introduced to the Universal Transverse Mercator grid system.

Resources:

Hall, Bob E. and Robert C. Barr

“GPS and GIS” PowerPoint presentation, June 2002

Center for Earth and Environmental Services, IUPUI

“GPS/GPS” National Park Service, Chihuahuan Desert Lab

<http://www.nps.gov/cave/desertlb/gis.htm>

N.G. Terry, Jr. “How to Read the Universal Transverse Mercator (UTM) Grid” From GPS World, April 1996, pp. 32, Advanstar Communications, Eugene, OR.

<http://www.nps.gov/prwi/readutm.htm>